

REMARKS/ARGUMENTS

Status of Claims

Claims 1-20 are pending wherein claims 1 and 11 are independent. Claims 1, 2, 6-9, 11, 12 and 16-19 are currently amended. As demonstrated below, all of the claims contain subject matter which is not disclosed, taught or made obvious by the cited art.

Allowable Subject Matter

For claims 4, 5, 14 and 15, the Examiner is thanked for indicating that the claims would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

For claims 2, 6-9, 12 and 16-19, the Examiner is thanked for indicating that the claims are allowable over prior art references if they overcome the rejection under 35 USC § 112. Accordingly, the Applicants amend claims 2, 6-9, 12 and 16-19 (see the response for the rejection of claims under 35 USC § 112 below).

The Applicants respectfully believe that all claims are now allowable over the prior art reference.

Rejection of claims 2, 6-9, 12 and 16-19 under 35 U.S.C. § 112

The Examiner rejected claims 2, 6-9, 12 and 16-19, stating that these claims are indefinite because they recite limitations defined in computer program code and not defined functionally. The Applicants traverse this rejection and amend the claims for clarity. Specifically, while the contended limitations may appear to look like computer code at first glance, they clearly recite formulas with variables that one of ordinary skill in the art would be able to ascertain the functionality claimed. The claims also provide definitions of the variables and operations used in the formula.

However, the Applicants amend these claims to clarify the formulas to make them easier to read. For example, one of ordinary skill in the art would read the contended limitations as a list of formulas with variables. These amendments do not alter the scope of the limitations.

Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection under §112.

Rejection of dependent claims 1, 3, 11 and 13 under 35 U.S.C. §103(a) as obvious over Yonge, III et al. (US 6,553,534) in view of Stralen et al (US 2003/0126550)

The Applicants respectfully traverse this rejection.

Regarding independent claims 1 and 11, the Examiner suggests that Yonge discloses most of the unique features of the Applicants' claimed method and apparatus. However, Yonge merely discloses a forward error correction with channel adaptation (Title) with a mechanism for adapting a forward error correction encoder to a channel. See col 2, lines 44-46. Yonge provides a network having a transmitting network node communicating with a receiving network node over a data channel, and each of the nodes having a transmit portion and a receive portion. The transmit portion in the transmitting network node of Yonge uses information regarding recent channel conditions as reflected in the most up-to-date channel map for the channel produced by the receiving portion of the receiving network node based on a prior data transmission to the receiving network node. See col 2, lines 20-29. Some of the cited portions of Yonge disclose a demodulator, an interleaver and a de-interleaver. However, these elements are not equivalent to the unique features of the Applicants' claimed method and apparatus, individually or in combination.

The Examiner specifically relies on column 4, lines 49-53 of Yonge, wherein the symbol block size is specified, to purportedly teach the claim limitation of *outputting a modulation symbol having a predetermined number of code symbols*. However, Yonge's disclosure of block size is not equivalent to the claimed feature *predetermined number of code symbols* because a symbol block size is a size of the symbol block irrespective of the number whereas the claimed number of code symbols relates to a quantity of code symbols and not the to a size of a symbol.

The Examiner appears to equate the claimed feature of *shuffling* as equivalent to the interleaving disclosed in Yonge and the claimed feature *deshuffling* as equivalent to the deinterleaving disclosed in Yonge. However, these elements are not equivalent. Yonge's interleaver is a row/column block of memory that stores a symbol block to be transmitted during a packet transmission (col 5, line 66 – col 6, line 7). Whereas, the claimed feature of shuffling

involves positioning of relative significant symbols in relatively reliable bit positions within a modulation symbol and positioning of relative insignificant symbols in relatively unreliable bit positions (see specification section, page 6, line 29 – page 7, line 2). Yonge's deinterleaver is a write operation that applies a reverse algorithm of that applied by interleaver and stores the 3-bit soft decision value for each bit as a group (col 9, lines 46-53). On the other hand, the claimed deshuffling involves recovering shuffled symbols to their original positions (see specification section, page 7, lines 3-4). Yonge's interleaving is not equivalent to the claimed feature of shuffling, and Yonge's deinterleaving is not equivalent to the claimed feature of deshuffling. In fact, Applicants' shuffling operation may even operate on interleaved codeword sequences (see specification section, page 7, lines 18-19).

Next, the Examiner suggests that Yonge discloses the claimed feature of reading the deshuffling code symbols and outputting a processed packet. Yonge merely discloses reading and writing the interleaver and/or deinterleaver. However, nothing in Yonge discloses the unique features of the claimed method and apparatus of *reading the deshuffled code symbols and outputting a packet*. Accordingly, Yonge does not teach, disclose or suggest the unique feature of the Applicants' claimed method and apparatus.

The Examiner relies on Stralen to make up for Yonge's deficiencies. However, it is unclear which claimed features the Examiner is suggesting as being disclosed by Stralen. In any case, Stralen fails to make up for Yonge's deficiencies. The Applicants assume that the Examiner is relying on Stralen to purportedly teach the claimed feature of the *deshuffling order being determined considering the demodulation scheme and a structure of a deshuffling memory device*. Stralen merely discloses a turbo decoder control for use with a programmable interleaver, variable block length and multiple code rates (Title) with real-time interleaving and de-interleaving (paragraph 38). However, this is not equivalent to any claimed feature. Specifically, the interleaving and deinterleaving disclosed in Stralen are not equivalent to the claimed feature of shuffling and deshuffling, respectively. Stralen fails to make up for Yonge's deficiencies. Yonge and Stralen, when taken alone or in combination, disclose, teach or suggest the unique features of the Applicants' claimed method and apparatus. Accordingly, claims 1 and 11 are allowable.

Regarding claims 3 and 13, the Applicants assert that these claims are also not disclosed by Yonge in view of Stralen at least because of their dependency of the respective amended base claims. Accordingly, claims 3 and 13 are also allowable since they each depend on allowable base claims.

Rejection of claims 10 and 20 under Yonge III and Stralen further in view of Applicant Admitted Prior Art

The Applicants traverse this rejection. Claims 10 and 20 are also not disclosed by Yonge in view of Stralen at least because of their dependency of the respective amended base claims. Applicant admitted prior art fails to overcome the deficiencies of Yong and Stralen, as purported by the Examiner. Accordingly, claims 10 and 20 are also allowable since they each depend on allowable base claims.


Conclusion

In view of the above, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

A one month extension fee is believed to be due with this submission, and has been paid. If any other fees are required, the Patent Office is authorized to charge any fees required by this submission to Deposit Account No. 18-2220.

Respectfully submitted,

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